MARINE REVIEW.

VOL. IV. CLEVELAND, OHIO, THURSDAY, DECEMBER 10, 1891. No. 24.

Sault Canal Traffic.

The St. Mary's Falls canal was closed on the 8th inst. and through the kindness of Supt. E. S. Wheeler we are enabled to present in full some of the main features of the canal business for the season of 1891: The total freight movement through the canal foots up 8,888,759 net tons, a decrease of 152,454 tons as compared with 1890. The cause of this decrease, which is, however, only 1.6 per cent., was the delay in opening navigation, on account of labor troubles and a very dull outlook in the iron trade. The great feature of the canal business is of course the increase in the wheat movement, caused by the big northwestern crop. Lumber shipments from Lake Superior also show a marked increase. The movement of the different kinds of freight through the canal during the season was as follows:

Description.	East-bound	West-bound.
Coal	.....	2,507,532 tons.
Flour	3,779,458 bbls.	685 bbls.
Grain	.....	149,950 bu.
Corn	882,154 bu.	.....
Wheat	38,816,670 bu.	.....
Building stone	44,080 tons.	.....
Copper	69,190 tons.	.....
Manufactured iron	.....	42,550 tons.
Iron, ore	3,560,213 tons.	.....
Iron, pig	27,281 tons.	.....
Salt	.....	234,528 bbls.
Lumber	366,305 M feet.	.....
Silver, ore	1,731 tons.	.....
Unclassified freight	84,074 tons.	333,019 tons.
Total freight of all kinds		8,888,759 tons.
Total passengers		26,166

In the following table, showing the movement of some of the leading commodities in the canal during the past three seasons, the comparisons will prove interesting:

	1889	1890	1891
Total freight, tons	7,516,022	9,041,213	8,888,759
Passenger	25,712	24,856	26,166
Coal, tons	1,629,197	2,176,925	2,507,532
Flour, barrels	2,228,707	3,239,104	3,780,143
Wheat, bushels	16,231,854	16,217,370	38,816,670
Iron ore, tons	4,095,855	4,774,768	3,560,213
Lumber, M feet	315,554	361,929	366,305
Copper, tons	33,456	43,729	69,190

Iron ore shipments through the canal show a decrease as compared with 1890, of 1,214,555 tons, while the gain in coal is 330,607 tons.

From the Secretary's Report.

In his annual report the secretary of the treasury, Hon. Charles Foster, presents some interesting figures regarding the merchant marine of this country, taken evidently from advance information regarding the report of commissioner of navigation. The iron vessels built during the fiscal year, ended June, 30, 1891, measured 105,618 tons. Of these there was built at the lake ports a tonnage of 57,989 tons, and on the Atlantic 46,265 tons. The documented iron tonnage on the lakes is 181,724 tons and on the sea coast is 554,963 tons. The entire documented iron tonnage including that of the western rivers, is 741,598.24 tons. The documented tonnage on the northern lakes June 30, 1891, was 1,154,870 tons; on the western rivers, 308,348 tons; on the Pacific coast, 440,858 tons; and on the Atlantic and Gulf coasts, 2,780,683 tons.

The foreign going tonnage, exclusive of that engaged in the whale fisheries, is 988,719 tons of which 236,070 tons are steam vessels and 752,649 tons are sailing vessels. Of our total documented tonnage 2,016,264 tons are steam, and 2,668,495 tons are other than steam. The registered vessels include the documented tonnage above mentioned in the foreign sea-going trade, and 17,231 tons in the whale fishery. The enrolled and licensed vessels include 3,609,876 tons documented under the federal laws and engaged in the "coasting trade" along the sea-coasts, the rivers, and the great lakes of the United States, and 68,933 tons licensed for the fisheries.

Deep Waterways Convention.

The commercial bodies of Detroit having in charge preparations for the deep waterways convention to be held in that city next Thursday, have assurance of a very large gathering, and there is every reason to believe that the convention will be in all respects harmonious. It may be that the question of a deep waterway to the seaboard will be left out of the petition to Congress which the convention will formulate, as a great many vessel owners and representatives of the shipping interests outside of the Lake Carriers' Association are known to be opposed to agitation of this subject at this time. They prefer having this question await a more general completion of improvements now under way.

Secretary Lane of the Detroit board of trade, who is in charge of all correspondence regarding the convention, has received notices of appointments of committees in nearly all the large cities on the lakes. The iron mining towns of Michigan, Minnesota and Wisconsin will be represented. It is hoped, now that the position of the Lake Carriers' Association has been clearly defined, as objecting mainly to agitation of the project for a seaboard outlet, that Buffalo will also be represented in the convention. W. W. Bates, commissioner of navigation, is among those who have signified their intention of being present.

Iron Ore Output and Amount on Dock.

The Iron Trade Review, issue of this date, presents some figures that will probably prove a surprise to the iron ore interests. From reports secured through the different railways, the amount of ore on Lake Erie docks, Dec. 1, 1891, is placed at 3,508,489 gross tons, as compared with 3,893,487 gross tons a year ago, when the amount on dock was greater than at any time in the history of the lake traffic in ore. Receipts during the season of 1891 were 4,939,684 gross tons, against 6,874,664 gross tons in 1890.

While the amount of ore on dock seems large in proportion to the receipts, it must be remembered that at the opening of navigation there were 2,400,000 gross tons on dock. Adding this amount on dock in the spring to the receipts during the season and deducting 3,508,489 tons, the amount now on dock, the consumption, or the amount that has gone to the furnaces since the opening of navigation, is found to be 3,831,195 tons. The Lake Superior output of ore is closely estimated for the season to Dec. 8 at 6,490,205 gross tons. The difference between this total and the receipts at Lake Erie ports, 4,939,684 tons, is 1,550,521 tons, which represents the amount shipped by lake to Chicago and other northwestern furnaces.

A large steamer named the Tekoa, belonging to the New Zealand Shipping Company of London, recently completed a voyage of 12,059 miles, without even slowing down. Her average speed was about 10½ knots.

A New Engine Works.

In line with the policy of the Detroit Dry Dock Company to keep up to the times and have the most economical appliances, the Dry Dock Engine Works has closed a contract with the Berlin Iron Bridge Company of Berlin, Conn., for a new fireproof modern machine shop, which will enable them to build the largest engines with the least expense and in the quickest possible time. This building when complete will be the finest machine shop on the great lakes and will compare favorably with any in the country. The plant will have every modern appliance, such as electric cranes, two of twenty tons capacity running the whole length of the building, new machinery, electric lights, etc. The shop will be 201 feet long by 66 feet in width, running along Orleans street with the end facing Guoin and Atwater streets, and partly overlapping the present quarters which will be torn down. The main portion of the building will be 200 feet long, 37 feet wide and 50 feet high in the clear, the two electric cranes running the whole length with 38 feet of clear space above the floor. Large windows will be placed along the sides, giving abundance of light, and a skylight with 12 feet of clear glass will run along the whole roof. Three galleries 28 feet wide, will open out on the main shop extending its entire length. The first two will be occupied by light machinery benches and the top gallery will be arranged for the storage of patterns. Work on the new building will be begun immediately. Two-thirds of it will be erected in eight weeks and completed in ten. The remainder will be completed as soon thereafter as the old shop can be cleared away. Plans are also being prepared for a boiler shop of the same style, work on which will probably begin very soon.

Contracts for Machinery.

The triple expansion engines building at the works of the Marinette Iron Works, West Duluth, for one of the boats of the American Steel Barge Company, will have cylinders 20, 32 and 54x42 inches; piston valve on high pressure cylinder, and flat valves on the other two. The columns will be square, staggered, with slipper guides on back columns. The pumps will all be independent, the air pump being 12x15x15 inches. The stern bearing will be lignumvitæ lined, with bush in end of pipe instead of the old fashioned overhang bearing. The propeller will be solid, 12 feet 6 inches by 16 feet outside pitch. The two Scotch boilers will be 12x13 feet.

The Manistee Iron Works Company, of Manistee, Mich., has closed two contracts for marine work. A fore and aft compound engine 14x28x26 inches, will be built for the tug John Leathem of Sturgeon Bay, Wis., and the engine in the barge Francis Hinton, belonging to Truman & Cooper of Manitowoc, will be compounded. The latter is to be a steeple compound with low pressure cylinder on top. This company's upright independent air pump and condenser will be placed in both these boats.

Contracts For New Boats.

The Detroit Boat Works of Detroit a few days ago contracted with V. Doller and others of Put-in Bay, O., for a steel steamer, to carry 100 passengers. The boat will be 80 feet keel, 92 feet over all and 19 feet beam. She will have triple expansion engines, 9½, 14 and 27 inches by 14 inches stroke and a boiler 7 feet 4 inches by 12 feet. The boat will be engaged during the excursion season between Put-in Bay and Middle Bass islands. She will be ready for service in May next.

John Roach & Son of Chester, Pa., will build the St. Lawrence river passenger steamer for which the Richelieu & Ontario Navigation Company has been planning for a long time past. The contract was placed through Samuel Holmes of New York and calls for a twin-screw steamer 180 feet long, 32 feet beam and 9 feet hold, to make a speed 18 miles an hour. The building of this boat marks a new departure in light-draft passenger vessels. The boat is to go on the route between Kingston and Montreal, and is expected to make the trip between 6 a. m. and 6 p. m. How the Canadian owners of this boat propose to meet the matter of a heavy import duty on this steamer built in the United States is not known. They can, of course, avoid paying the duty by having the boat, when built, registered in Newfoundland or Great Britain under the Imperial free trade rules, as under such register full privileges in Canadian water would be secured.

Do Not Use Boards For Stern Names.

Among the decisions from the treasury department for September and October, just received, is one relating to the marking of vessels' names. In a letter to the collector of customs at Port Townsend, Wash., Acting Secretary O. L. Spalding says: "The department is in receipt of your letter transmitting a petition by E. P. Blake, managing owner of the steamer Louise, for relief in the matter of a penalty of $50, incurred under section 4178 revised statutes, as amended, by failure to have name and hailing port properly marked on the vessel, they being marked merely on a board attached to the steamer's stern. It has been held heretofore by this department that the use of a board under the circumstances above mentioned, does not constitute a compliance with the requirements of the statue. It is noticed that the applicant alleges that 'it is much easier to remove the sign-board and replace it with a new one than it is to repaint the stern.' That this is the fact in all such cases was probably the main reason for the passage of the existing requirement of the statute that the name shall be 'marked upon the stern' of the vessel, from which it can not be easily effaced, rather than upon a board temporarily affixed to the hull, and forming no part thereof."

Cleveland Matters.

Capt. Wm. Cumming, who was compelled to leave his boat, the Mutual Line steamer Corsica, at Buffalo, is confined to his home with a severe attack of pneumonia.

The annual ball of the harbor tugmen will take place at Turn hall on the evening of the 27th inst. The officers are: H. J. Coulter, president; M. J. Farrell, vice-president; Henry H. Rye, secretary; and S. T. Dwyer, treasurer.

Calvert C. Canfield and William A. Hawgood will begin a vessel brokerage business in the Perry-Payne building with the new year. Mr. Hawgood is a brother of Henry A. Hawgood of the firm of Hawgood & Avery, vessel owners, and Mr. Canfield is a son of William A. Canfield, general agent of the Ohio Coal Exchange. Both are experienced in shipping matters.

Fitting preparations will undoubtedly be made by the Cleveland lodge, Excelsior Marine Benevolent Association, for the meeting of the grand lodge to be held some time in January. The different lodges in all parts of the lakes will be represented. The first meeting of the Cleveland lodge this winter will be held Friday.

Roger M. Lee and Duane H. Tilden, attorneys, have formed a partnership under the firm name of Lee & Tilden, and will with the first of the year take up offices in the Perry-Payne building, giving special attention to admiralty matters. Both are young men who have been very successful in their profession. Mr. Lee has been associated with Mr. Harvey D. Goulder for some time past. Mr. O. C. Pinney, special deputy in the office of Collector of Customs Gary, resigns his office to join Mr. Goulder in the practice of admiralty.

A steel tug, the Fearless, recently launched by the Union Iron Works of San Francisco, for John D. Spreckels & Bros., meaures 153 feet over all, 26 feet beam and 16 feet depth of hold. The engines are triple expansion and the boat has two boilers. She will cost when completed about $175,000. Fire pumps and a search light are features of her equipment.

Record of Speed and Big Cargoes.

[*Masters or owners are invited to report improvement on this list.*]

Iron ore: Lake Michigan—Maryland, Inter-Ocean Transportation Company, of Milwaukee, 3,322 gross, or 3,737 net tons, Escanaba to South Chicago, draft 16 feet 6 inches; E. C. Pope, Eddy Bros. of Bay City, 3,239 gross, or 3,628 net tons, Escanaba to Buffalo, draft 16 feet. Lake Superior—E. C. Pope, Eddy Bros. of Bay City, 2,828 gross, or 3,167 net tons, Ashland to Lake Erie, draft 14 feet 6 inches.

Grain: E. C. Pope, Eddy Bros. of Bay City, 125,730 bushels of corn, draft 14 feet 8 inches; Western Reserve, Peter Minch, of Cleveland, 112,431 bushels of wheat, Chicago to Buffalo; W. H. Gilcher, J. C. Gilchrist, of Cleveland, 114,982 bushels of corn, Chicago to Buffalo.

Speed: Owego, Union Line, of Buffalo, Buffalo to Chicago, 889 miles, 54 hours and 16 minutes, 16.4 miles an hour; Saranac, Lehigh Valley Line, of Buffalo, Buffalo to Lime-Kilns, 240 miles, 15 hours and 10 minutes, 16 miles an hour.

Iron Mining.

VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter & Co., No. 104 Superior St. Cleveland, O.

Stocks.	Par Value.	Bid.	Asked.
Cleveland-Cliffs Iron Company	$100 00	$.....	$ 80 00
Champion Iron Company	25 00	.....	76 00
Chandler Iron Company	25 00	42 00	.....
Chicago and Minnesota Ore Company	100 00	.....	.....
Jackson Iron Company	25 00	.....	105 00
Lake Superior Iron Company	25 00	.....	.....
Minnesota Iron Company	100 00	.....	81 00
Pittsburg Lake Angeline Iron Co	25 00	.....	145 00
Republic Iron Company	25 00	25 00	26 50
Ashland	25 00	.....	.....
Section Thirty-three	25 00	5 00	.....
Brotherton	25 00	2 00	.....

A meeting of the directors of the Republic Iron Company was called at noon Wednesday, but there was not a quorum present. The intention was to declare a dividend of 50 cents a share and this will no doubt be done when the directors can be brought together before the close of the week. The Minnesota Iron Company has declared a regular quarterly dividend of 1½ per cent., payable Jan. 2. Transfer books close Dec. 17, 1891, and reopen Jan. 4, 1892. It is said that the Minnesota company will extend its Duluth & Iron Range Railway into the western Mesaba range next spring. There is little doubt that it is the intention of this company to control the greater portion of the mineral lands of Minnesota.

An output of 475,000 tons is credited to the Buffalo group of mines controlled by the Schlesinger syndicate. The Dunn mine shipped 163,000 tons, according to the Norway Current, and has 5,000 tons in stock. The Mastodon sent out 45,000 and the Paint River 46,000 tons. Although the Florence mine shipped less than 50,000 tons, as against 240,000 tons in 1890, it is estimated that at least 150,000 can be stocked at the mine during the winter.

The Diamand Drill of Crystal Falls says that capitalists interested in the Illinois Steel Company have about completed negotiations for the purchase of the Monitor, a Crystal Falls property, and that they will push operations in the mine.

Notice to Mariners.

The light-house board gives notice that on the opening of navigation, 1892, a fixed red light of the fourth order will be exhibited from the structure recently erected on the point of land separating Agate and Burlington bays, entrance to Two Harbors, Lake Superior. The light will illuminate the entire horizon, and may be seen in clear weather about 13 statute miles. Distance and true bearings of prominent objects are approximately as follows: Headland N. of Burlington bay, N. E. ¾ E., 1½ statute miles; Granite point, S. W. ⅛ W., 7⅝ statute miles. During thick or foggy weather a 10-inch steam whistle will be sounded, giving blasts of 5 seconds duration, with alternate silent intervals of 17 and 33 seconds.

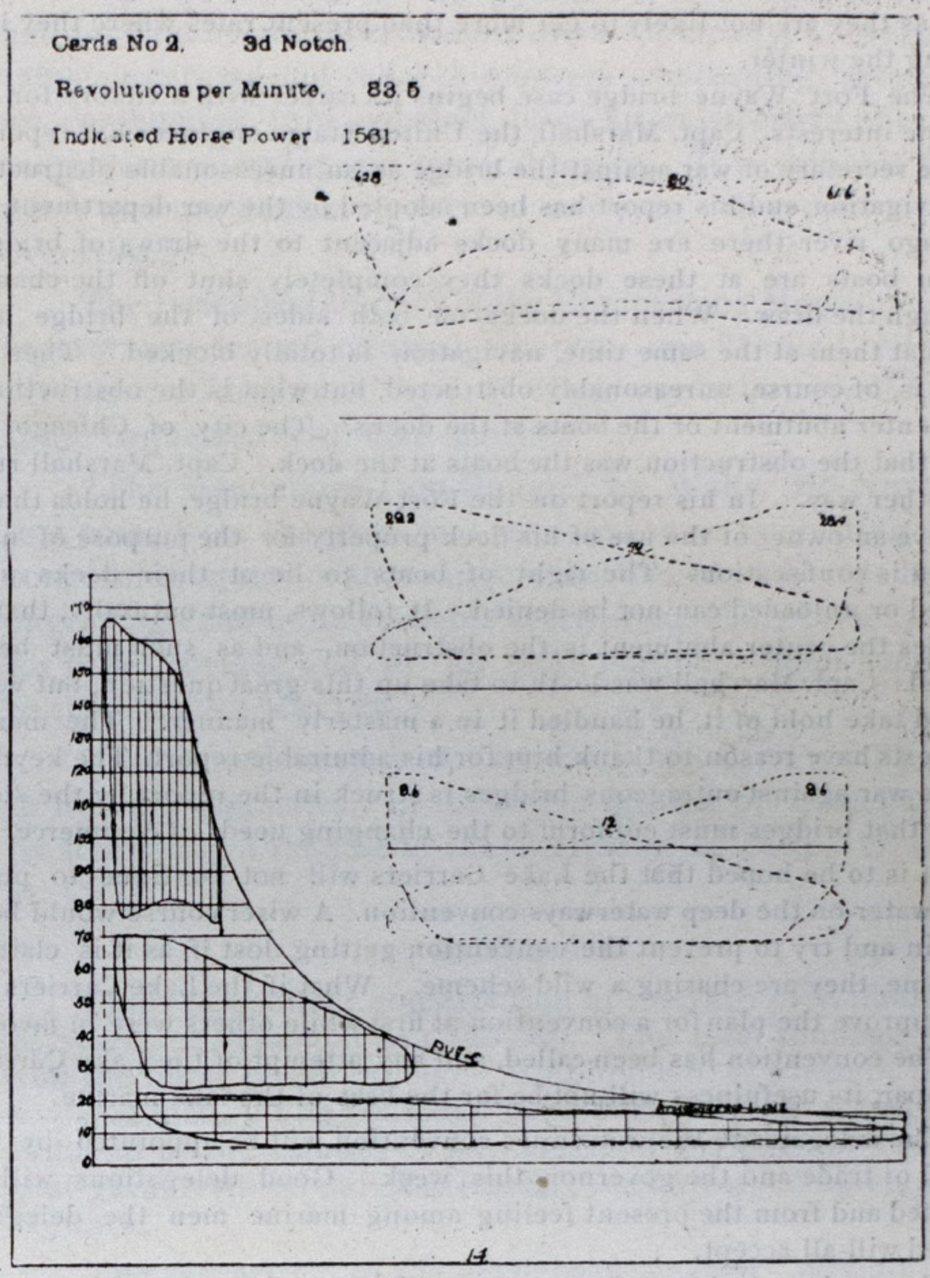
The permanent moorings of the light-ships now removed from the Straits have been marked by spar buoys as follows: Simmon's reef, red; White shoal, white; Gray's reef, red and white.

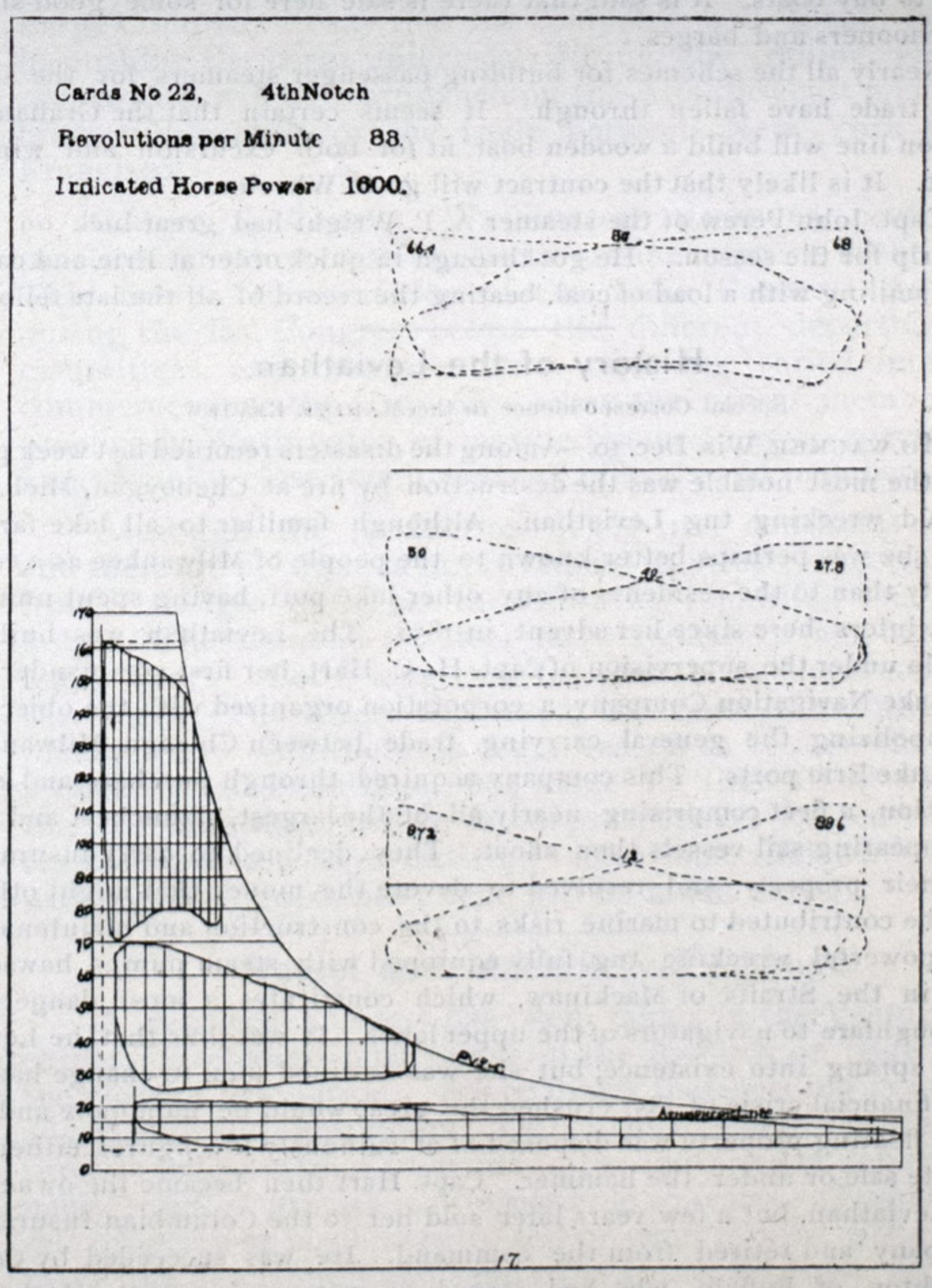
For the benefit of readers of the REVIEW who are on the lakes over half the year, a special rate of $1 for six month's subscription is made. The paper will be sent to any part of the United States or Canada at this rate and the address may be changed at any time. Order by mail before leaving boat for the winter.

Report of Experimental Trip,

MADE UPON SCREW STEAMER E. P. WILBUR TO THE BUILDERS, THE GLOBE IRON WORKS COMPANY, CLEVELAND, O,

Last week card diagrams No. 1 and 12 were presented, and this week card diagrams No. 2 and 22 are shown. Particulars relating to these diagrams will be found in tables Nos. 1, 2 and 3 in the three preceeding issues.





[TO BE CONTINUED.]

CHICAGO LAKE INTERESTS.

WESTERN OFFICE, MARINE REVIEW,
No. 210 So. Water Street, CHICAGO, Ill., Dec. 10.

The winter fleet can store away over 7,000,000 bushels of grain before the opening of navigation next spring. The fleet is about half as big as estimated a month ago and considerably larger than seemed probable Nov. 30. It looked strange Monday, with a foot of snow on the ground, to see steamers going out into the lake. It appeared like winter navigation in earnest. If the boats get through all right they have gained half a trip, as they are not likely to get more than present rates where they load during the winter.

The Fort Wayne bridge case begins its career with a victory for the marine interests. Capt. Marshall, the United States engineer,has reported to the secretary of war against the bridge as an unreasonable obstruction to navigation, and his report has been adopted by the war department. In Chicago river there are many docks adjacent to the draws of bridges. When boats are at these docks they completely shut off the channel through the draw. When the docks on both sides of the bridge have boats at them at the same time, navigation is totally blocked. Then the river is, of course, unreasonably obstructed, but what is the obstruction—the center abutment or the boats at the docks? The city of Chicago has held that the obstruction was the boats at the dock. Capt. Marshall rules the other way. In his report on the Fort Wayne bridge, he holds that to deprive an owner of the use of his dock property for the purpose of navigation is confiscation. The right of boats to lie at their docks until loaded or unloaded can not be denied. It follows, most naturally, that he decides the center abutment is the obstruction, and as such must be removed. Capt. Marshall was loath to take up this great question, but when he did take hold of it, he handled it in a masterly manner. The marine interests have reason to thank him for his admirable report. The keynote of the war against outrageous bridges is struck in the report by the statement that bridges must conform to the changing needs of commerce.

It is to be hoped that the Lake Carriers will not continue to pump cold water on the deep waterways convention. A wiser course would be to step in and try to prevent the convention getting lost if, as it is claimed by some, they are chasing a wild scheme. What if the Lake Carriers did not approve the plan for a convention at first while others were in favor of it. The convention has been called, and any attempt of the Lake Carriers to impair its usefulness will not be for the best of the lake marine.

The delegates to the waterways convention will be appointed by the board of trade and the governor this week. Good delegations will be selected and from the present feeling among marine men the delegates named will all accept.

From what one hears there are several people here in Chicago who want to buy boats. It is said that there is sale here for some good-sized A1 schooners and barges.

Nearly all the schemes for building passenger steamers for the Chicago trade have fallen through. It seems certain that the Graham & Morton line will build a wooden boat, fit for both excursion and winter traffic. It is likely that the contract will go to Wheeler.

Capt. John Perew of the steamer A. P. Wright had great luck on his last trip for the season. He got through in quick order at Erie and came back smiling with a load of coal, beating the record of all the late fellows.

History of the Leviathan.

Special Correspondence to the MARINE REVIEW.

MILWAUKEE, Wis. Dec. 10.--Among the disasters recorded last week perhaps the most notable was the destruction by fire at Cheboygan, Mich., of the old wrecking tug Leviathan. Although familiar to all lake-faring men, she was perhaps better known to the people of Milwaukee as a community than to the residents of any other lake port, having spent numerous winters here since her advent in 1856. The Leviathan was built at Buffalo under the supervision of Capt. H. C. Hart, her first commander for the Lake Navigation Company, a corporation organized with the object of monopolizing the general carrying trade between Chicago, Milwaukee and Lake Erie ports. This company acquired, through purchase and construction, a fleet comprising nearly all of the largest, staunchest and finest appearing sail vessels then afloat. They declined to carry insurance on their property, and resolved to devote the money that might otherwise be contributed to marine risks to the construction and maintenance of a powerful wrecking tug, fully equipped with steam pumps, hawsers, etc., in the Straits of Mackinaw, which constitutes a most dangerous thoroughfare to navigators of the upper lakes. It was thus that the Leviathan sprang into existence; but she was destined soon to change hands. The financial crisis of 1857 crushed the great would-be monopoly and all of its floating property was disposed of at ruinously low figures, either by private sale or under the hammer. Capt. Hart then became the owner of the Leviathan, but a few years later sold her to the Columbian Insurance Company and retired from the command. He was succeeded by Capt. Naughton, of Buffalo, who had served as mate under Capt. Hart. In the course of time the Columbian went to the wall, and the Leviathan was purchased by Lemuel Ellsworth, of Milwaukee, when Capt. Naughton was displaced by Capt. Charles McNally. About this time the owners of the large lake and river tugs began housing them in forward and the Leviathan was subjected to similar treatment, which not only added materially to her appearance but also to the comfort of the crew in heavy weather. From Lem. Ellsworth's hands the tug next passed into the possesion of Wolf & Davidson and Capt. Chas. E. Kirtland, the latter assuming the position of commander and wrecking master, which he held until compelled by ill health to sell out and retire in favor of Capt. Peter Anderson, now master of the Inter Ocean Company's steamer Massachusetts. Capt. Edward Thorpe, now of the steamer John Owen, succeeded Capt. Anderson,and when Wolf & Davidson sold out to S. B. Grummond of Detroit, Capt. Martin Swain, now part owner of the wrecking tug Favorite, took charge. Upon Capt. Swain's retirement, Capt. Kirtland again succeeded to the command, only to be followed, after an unsatisfactory season, by Capt. Laframbois, who has to yield her her up a prey to the flames.

In her palmy days the Leviathan was without a peer on fresh water as a wrecker. Her light draught and twin screws, propelled by powerful double engines, rendered her very handy, especially in effecting the rescue of vessels stranded with cargoes on board. She was peculiarly fortunate also, never having been entangled in any serious trouble while engaged in the performance of wrecking service. Even in her closing years, when a few heavy thumps upon a hard bottom, would have been sufficient to shiver her time honored frame, she seemed to bear a charmed life, escaping from the danger which often encompassed her by hair-breadths as it were.

Of all the commanders whose names have been associated with the history of the Leviathan, Capt. Kirtland was undoubtedly the most scientific as well as the most successful in difficult undertakings. His rescue of the steamer Amazon and her consorts, the tow barges E. T. Judd and C. B. Jones, from the rocks on North Manitou island, is without parallel in the history of lake wrecking operations. His release of the schooner Allegheny from Racine's north point was another difficult task skillfully accomplished, as was also the release of the barge J. H. Rutter, with a cargo of corn on board, from the treacherous sands of the east shore of Lake Michigan near Ludington. L. B.

"Straight-Back" Freight Carriers.

Special Correspondence to the MARINE REVIEW.

DETROIT, Mich., Dec. 10.—"Straight-back" is the name given to the new type of freight carrier brought out by the Detroit Dry Dock Company, and for which a reduction of cost in construction and economy in operating expenses are claimed as leading features. Drawings of the new style of boat have been exhibited at the office of the company for some time past. The Anchor line steamer which this company will build embodies the principles of the "straight-back." The dry dock company now has four boats under contract and the ship building situation is assuming an active appearance. In addition to the Anchor line steamer and the boat to be engaged in carrying pig iron for the Cleveland-Cliffs Mining Company, a steamer to be named Wyandotte will be built for the Clark estate. She will be an 18-mile boat, especially adapted to replace the steamer Riverside, which has been running betweez Detroit and points down the river.

At the shipyard proper there is one wooden ferry boat under contract, which when completed will be far better in appearance, finish, comfort and capacity than any of the boats of this kind on the lakes.

The Kasota is in the large new dry dock, ready to begin work as soon as the cofferdam is completed, which it will be this week. She presents a very dilapidated appearance, and is practically broken in two. This will be an all winter job as it will require a great deal of labor to put the boat in commission again. There is some serious talk of lengthening her which could be very easily done and at very little additional expense.

Canadian Grain Exports.

Special Correspondence to the MARINE REVIEW.

KINGSTON, Ont., Dec. 10.—The forwarding business is done for the year. A statement showing the quantities shipped from Montreal this year as compared with that of last will be interesting. The figures for 1891 are: Wheat, 6,135,043 bushels; corn, 2,187,578; peas, 1,982,931; oats, 744,257; barley, 812,178; rye, 2,253,514. In 1890: Wheat, 2,161,817; corn, 4,805,035; peas, 1,382,224; oats, 210,000; no barley; rye, 240,863. The totals are: 1891, 14,115,402 bushels; 1890, 8,799,939 bushels. Last season was the largest in the history of the St. Lawrence trade.

J. B. Fairgrieve & Co. of Hamilton, will this winter build a new steel propeller to cost $60,000. The steel plates will be imported from England.

The ship carpenters, who had little or nothing to do last winter, expect plenty of work this winter, because the dry dock is expected to have several large jobs.

The recent improvements to the mail steamer Spartin's engines are calculated to give her a speed of fourteen miles an hour.

An Explanation From Canada's Marine Department.

Special Correspondence to the MARINE REVIEW.

OTTOWA, Ont., Dec. 10.—The article in the MARINE REVIEW of Nov. 26, which criticises as barbarous and disgraceful the wrecking laws of Canada and United States, has elicited from Mr. William Smith, deputy minister of marine, the assurance that in the case of the crews of two vessels recently wrecked near Goderich, Ont., the officer of the department at that port exercised undue caution in telegraphing to Ottowa for permission to allow an American tug to be sent to their relief. "While I agree," he said, "that the REVIEW'S strictures upon the mutual severity of our wrecking laws is not uncalled for, I am bound to say that in this case there was no occasion for the officer at Goderich to have exercised the precaution of telegraphing to me for instructions. It was enough for him to know that human life was in danger. The wrecking laws of the Dominion very clearly specify that in cases of distress the restriction as to the nationality of vessels which may be employed upon our lake coasts does not apply. The provision 'except in case of distress' is a very plain feature of that portion of the coasting regulations covering this case. The American tugboat being the only one available for the duty, the officer at Goderich should have ordered her to proceed at once to the scene of disaster, without awaiting instructions. I would like to add, however, that as it happened no serious delay resulted, since a reply was promptly dispatched by me directing him to engage the American tug boat, no other being available."

Nearly Fifty Millions of Grain.

Special Correspondence to the MARINE REVIEW.

DULUTH, Minn., Dec. 10.—The figures of the season's shipments sent last Monday need a revision to make them correct. The total shipments of the season were 33,428,063 bushels instead of 32,966,266 as sent last week. November shipments were 10,868,213 bushels and December's 976,718 bushels. As nearly as figures have been got at the shipments by lake of flour for the season were 2,924,000 barrels, an increase of 485,000 barrels over last year. Reducing flour to its equivalent in wheat the total wheat and flour lake shipments from the head of Lake Superior this year have been 47,586,000 bushels. Course grain shipments were 1,200,000 bushels.

The receipts have fallen off considerably since the first of the month, but at the present movement elevators will be full by spring. Last week's movement was as follows :

	Receipts, bu.	Shipments, bu.
Last week.....	1,315,788	1,182,874
Previous week	2,118,688	3,348,729
Corresponding week, 1890.....	613,151	16,700

Capt. B. B. Inman, who has bought the wreck of the Winslow, says he will raise it in the spring and build a barge out of it for the lumber trade.

Rehearing in the Armour-Marion Case.

Special Correspondence to the MARINE REVIEW.

MILWAUKEE, Wis., Dec. 10.—Counsel for the steamer Marion, in the Armour-Marion collision case, scored an importani point toward the close of last week when Judge Jenkins, after listening to arguments, decided to grant a rehearing on the points embraced in their petition which have been given in the MARINE REVIEW. It can safely be said that counsel for the Armour were hardly prepared for such a conclusion on the part of Judge Jenkins, as it has been a rule heretofore in the United States district court here not to grant rehearings, but to advise appeals to the higher courts. The same practice has also been closely adhered to in Illinois, so Proctor Charles E. Kremer says. Now both sides will have an opportunity to submit new briefs, and Judge Jenkins no doubt will go through the voluminous testimony in the case with great care, which it is absolutely certain he could not have done in the short time that elapsed between the first hearing and the filing of the interlocutory decree. It is hardly to be expected, however, that he will reverse the original decision ordering a division of the damages.

The disappearance of Capt. Elmer W. Craine of the steamer W. H. Wolf from Buffalo with a considerable sum of money belonging to the craft and numerous smaller amounts borrowed from parties in Buffalo as well as in Chicago, has aroused considerable interest here. It is known that he drew $2,050 from the Buffalo agents of the steamer on her bill of lading and it is also known that he drew $2,300 on cargoes of ore delivered at South Chicago just before making the Buffalo trip. He may have used a large proportion of the last mentioned amount in the payment of coal and supply bills, but as a number of minor claims are being forwarded to the home office of the steamship company Com. Wolf mistrusts that the larger ones will soon follow in their wake. Com Wolf said today that the amount of the company's money appropriated by young Craine would certainly reach $3,000. A money package containing $300, forwarded by express to Mrs. Capt. Craine in Chicago, has been attached by the steamship company. He has been traced to Detroit, from which point he is supposed to have migrated to the far southwest. Com. Wolf professes to have been aware of Capt. Craine's tendency to wildness, but hoped to be able to make a steady-going man of him. His present experience has convinced him that missionary work is not his forte and he proposes to leave the field to others whose purses can better stand the strain.

The receipts of coal at Milwaukee will aggregate about 1,010,000 tons, againrt 903,659 tons in 1890.

Publications.

The Practical Catechism, published by John Wiley & Sons, and for sale by the Burrows Brothers Company, Cleveland, contains quotations and reliable answers concerning properties of air, combustion, iron and steel, lubrication, strength of materials, temperatures, water and general topics. It is valuable to engineers and mechanics, in fact to anybody who does not know everything.

The December number of the Engineering Magazine contains several articles of unusual interest, one "Fulton Night with Mechanical Engineers," by J. F. Holloway, who is well known to those connected with lake marine.

"The Menominee Iron Range," by Walter F. Nursey, has just come from the press and presents some interesting statistics concerning mines of that range, embellished with some handsome engravings and quite readable description. The price is 60 cents for paper covered and $1 for cloth edition. Send your orders to the MARINE REVIEW.

Owners and masters can secure a copy of "Port Regulations in Foreign Countries," containing a full list of Canadian lights, by addressing a request to the secretary of state, Washington, D. C.

In General.

Ships now under construction at the yard of William Cramp & Sons, are valued at $14,440,000. The total tonnage is 43,696 and the horse power 76,000. Employment is given in this work to 3,000 men. The company earned premiums from the government to the amount of $318,724.50 by excess of speed over that garanteed for the Baltimore, Yorktown, Philadelphia and Newark.

The safe arrival of the whaleback steamer Wetmore at San Francisco prompts A. D. Thompson of the American Steel Barge Company to say that the company will spend $3,000,000 in pushing the barge enterprise during the coming year. He says a yard will be established on the Atlantic coast and a line of boats will be built for the trade between New York and San Francisco.

Conger & Conger, Washington attorneys, confine their practice almost exclusively to the marine interests of the country. This firm's representation of the Lake Carriers' Association during the last Congress before the different departments and committees, and a representation of many varied interests of commerce since the year 1887, when the senior member began practice in Washington of marine business as a specialty, has kept them in close touch with all officials and members.

Although the production of pig iron continues enormous and there are no signs of improvement in prices, a recent circular from Carnegie & Co has the following regarding the iron market : "The demand for steel rails is good; in fact, the best for many years. For a long time the general business condition of the country has been depressed, but there is nothing to complain of now, and there is every reason to believe that the improvement will continue, not alone for this fall or winter, but that the time ahead will be full of prosperity. Indeed there is no reason to doubt from existing indications, that while this year will continue good, next year will be much better.

Vessel and Machinery Exchange.

A renewed interest has been taken in the Vessel and Machinery Exchange department of the REVIEW on page 12, since the close of navigation. Space under that heading is free to our advertisers and subscribers. Out of the 87 liners used there, only three failed to attract from one to ten inquiries or replies. How many resulted in sales it is impossible to learn. If you have vessel property or machinery to sell or want to buy, write a two or three line description and send to MARINE REVIEW.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, ... } PROPRIETORS.
F. M. BARTON, ... }

HOMER J. CARR, - - - Associate Editor and Manager Chicago Office, 210 South Water Street.

Published every Thursday at No. 510 Perry-Payne Building, Cleveland, O.

SUBSCRIPTION—$2.00 per year in advance. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department contain the names of 3,510 vessels, measuring 1,063,063.90 tons in the lake trade. In classification of this fleet the lakes have more steamboats of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The classification is as follows:

Class.	Number.	Tonnage.
Steam vessels	1,527	652,922.25
Sailing vessels	1,272	328,655.96
Canal boats	657	67,574.90
Barges	54	13,910.09
Total	3,510	1,063,063.90

According to the report of William W. Bates, United States commissioner of navigation, 46 per cent. of the new tonnage of the country was built on the lakes during 1889. This is a percentage greater than the work of the Atlantic coast and western rivers combined, and almost equal to the whole work on the Atlantic and Pacific coast. In 1890 the tonnage built on the lakes is but very little less than that built on the Atlantic and Gulf coasts. Tonnage built on the lakes during the past five years was as follows:

	No. of boats.	Net Tonnage.
1886	85	20,400.54
1887	152	56,488.32
1888	222	101,102.87
1889	225	107,080.30
1890	218	108,515.00
Total	902	393,597.03

Annual tonnage entries and clearances of the great seaports of the world, for 1889: New York, 11,051,236 tons; all seaports in the United States, 26,983,315 tons; Liverpool, 14,175,200 tons; London, 19,245,417 tons.

Tonnage passing through Detroit river during 234 days of navigation in 1889, amounted to **36,203,606** *tons. Ten million tons more than the entries and clearances of all the seaports in the United States, and three million tons more than the combined foreign and coastwise shipping of Liverpool and London.*

St. Mary's Falls and Suez canal traffic: Number of boats through St. Mary's Falls canal in 1890, 234 days of navigation, 10,557; tonnage, net registered, 8,454,435. Number of boats through Suez canal during 1890, full year, 3,389; tonnage, net registered, 6,890,014.

Entered at Cleveland Post Office as Second-class Mail Matter.

NEW YORK'S court of appeals has ruled that the bill of lading ing in vogue in the grain trade is a good form of contract. This bill of lading is known to be a great detriment to vessels, on account of a number of losses from shortages through it. It is not an argument to say that the vessel, on the other hand, is paid for all overplus grain. Shortages are the rule, while an overrun is the exception, and it is on this account that many vessels avoid the grain trade, except when rates are high. In every case the vessel owner taking grain figures on the advantage of dispatch in the trade as an offset for the form of contract which subjects him to danger of loss on account of shortages. Custom in the grain trade should certainly make the matter of dispatch an implied part of the contract containing the shortage clause, to which the vessel owner attaches so much importance. In consideration of these conditions, then, it does seem fair that the vessels put to great loss on account of the grain blockade in Buffalo should be remunerated. The New York Central and other railways that contracted for more grain than they could handle are certainly responsible in a great measure for this delay.

HERE is a Christmas present that arrived early, all the way from San Francisco:

"The MARINE REVIEW of Cleveland, O., is one of those journals that sticks to its text and expounds it too. It will be hard to point to, in this country, another publication that finds within its own peculiar field, so much relevant and useful information. The shipping industry of the lakes is a vast interest, and an interesting one that provides wide premises. The same remark applies to many other cases, but in no one where favorable analogy can be made. The REVIEW has evidently a 'marine editor,' with other 'furtherances' of a commendable kind, and has 'come to stay.' "—The Journal Industry.

The Journal Industry is one of a few technical publications in the country that print orginal reading matter and have none of the characteristics of the advertising sheet. This compliment is all the more appreciated on account of its source.

IN THE engineer corps of the army are included some of the greatest men of this country. A few of these officers are in service on the lakes, and the vessel owners, who have close relations with them in river and harbor improvement matters involving millions each year, hold them in the highest esteem. The grand system attending their work is deserving of almost as much admiration as the men themselves. The unfortunate affair at Cleveland, in which one of the members of the corps, Major L. Cooper Overman, is charged with dishonesty, will not lessen confidence in other men of the service.

WITH the first flow of ice down the Detroit river, a few days ago, the temporary float lights on the Lime Kilns' crossing, maintained by private expense, were removed, and all deep laden boats were compelled to tie up while preparations were being made to again mark the channel. It is singular, to say the least, that the government should put a vast amount of money into cutting a channel at this point out of solid rock and then leave it unmarked for two seasons.

IN the life saving service, with its many appliances and methods, the men must have a few years of experience in order to reach a fair standard of efficiency. On the lakes as well as on the coast, nearly one half of the crews leave the service for better pay elsewhere. The business must be learned, and it is at all times dangerous. These are reasons why Congress should appropriate sufficient money to raise the rate of compensation in this service.

FULL 2,500,000 tons of coal went to Lake Superior ports by water during the season. The grain movement from Duluth and Superior to Buffalo will foot up about 40,000,000 bushels, as against 16,217,370 bushels in 1890, and the lumber shipments from the same locality are 20,000,000 feet ahead of the previous year. The big wheat crop certainly caused a prosperous ending to a season with a poor beginning.

NOTWITHSTANDING the very light movement of freight in the first two months of the season, on account of labor troubles and a general dullness in shipping, the Sault canal shows a total freight tonnage about equal to that of 1890. The traffic below Lake Superior will, of course, show a proportionate aggregate.

Some Figures on Chicago's Lake Trade.

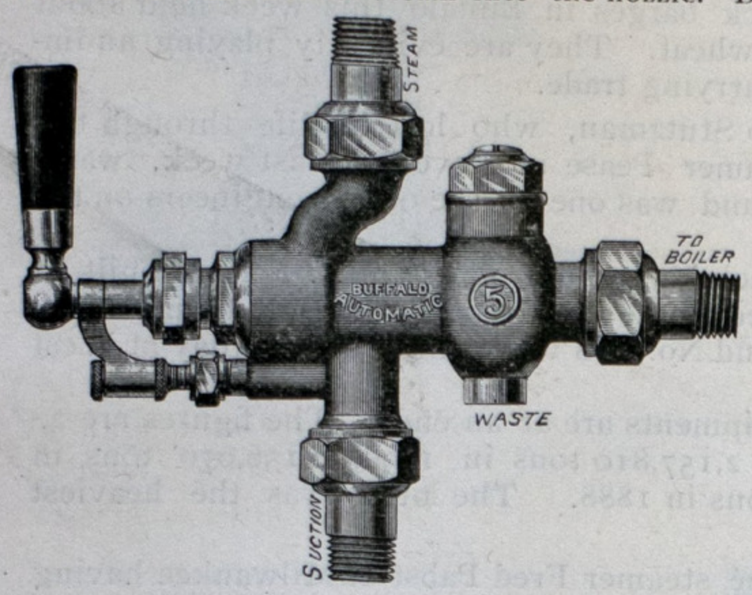
Chicago's lumber receipts for the season were the largest in in the city's history, and the heavy movement from Lake Superior was the cause of it. This trade is certain to show big gains in the future. The total receipts, according to figures furnished by the lumber exchange were 1,958,567,000 feet. In 1890 the receipts were 1,862,570,000 feet.

Grain shipments by lake out of Chicago for the season, taking Dec. 5, as the close, aggregated 101,395,312 bushels, and the average rate of freight to Buffalo was between 2 and 2¼ cents a bushel. Shipments were divided as follows: Wheat 31,060,955 bushels; corn, 39,782,886 bushels; oats, 17,465,975 bushels; flaxseed, 6,074,214 bushels; rye, 5,443,282 bushels; barley, 1,568,500 bushels.

The receipts of anthratice coal by lake foot up 1,057,382 net tons, while the total of both rail and lake was but 1,388,466 net tons.

Something New in Injectors.

This invention belongs to that class of injectors to which the flow of water is automatically resumed when the feed has been interrupted from any cause, this being effected by a peculiar valve mechanism, in which the water valve and steam valve are operated simultaneously, whereby the supply of water to the injector is at all times proportionate to the steam supply, both of said valves being operated by one handle. By turning this handle in the proper direction, the steam valve recedes from its seat and admits steam into the nozzle. During the lengthwise movement of the steam valve and its stem the water valve is opened, owing to the yoke connecting the water valve rod with the steam valve stem, thereby actuating the water valve simultaneously with the steam valve at all times. The movement of the steam and water valves and their relative positions are such that the supply of water will always be in proportion to the supply admitted to the jets, thereby insuring the proper working of the injector and preventing an excess supply of water, which is likely to take place when using a water valve operated independently of the steam valve. The simultaneous clos- of the water valve with the steam valve is very desirable when water is supplied to the injector under pressure.



By the operation of the steam and water valves simultaneously, the capacity of this machine can be graded, so that in feeding a boiler a quantity of water can be fed into the boiler equal to the amount that is being evaporated, thus enabling the engineer to run the injector continuously, producing a most economical result in boiler feeding.

It is stated that on a recent test of this machine an injector with one-inch connections, with 65 lbs. steam pressure, would feed at its largest capacity 572 gallons per hour and cou d be graded down to 277 gallons per hour under same steam pressure.

This device is manufactured by the Sherwood Manufacting Company, 32 Washington street, Buffalo, N. Y.

The Young Engineer.

Some time ago I promised to tell what the owner learned when he asked me to trace the feed water from the sea-cock to the discharge. Said I to him: See that pipe coming up over there? Well, the water flows in through it to the condenser, the amount being controlled by the injection valve. I was on a boat once where we had to point the outboard end of that pipe forward, because she went so fast that the water didn't have a chance to get into the opening. On the end of that pipe in the condenser is a rose-head, or jet, through which the water passes and is distributed around in the condenser in the form of a fine spray, condensing the exhaust steam into water. This water, heated to a temperature of about 120 degrees by the exhaust steam from the main engine, flows out of the bottom of the condenser through the channel way into the air-pump, which forces it out overboard through the discharge pipe. [We have an independent air pump on our boat and the devil take the ones connected to the main engine.] Now you may think it funny, but in warm weather the condenser needs more water than in cold weather, because when the water goes through this jet in the condenser the colder it is the less it takes to condense the steam; there being a difference of about two inches between Lake Superior and Lake Erie water, one gets a better vacuumn.

By the way, do you know that a large air chamber furnishes a cushion for the water as it passes through the pump? I learned that when I was greasing. The boiler feed pump would stop pumping, and one day accidently I opened the cock on this chamber, when Mr. John Boiler feed pump started off working all right. You see, steam from the hot water we were pumping would get into the air chamber, expand and follow the plunger, stopping the water from getting into the pump. So look out for two much of a good thing. The owner wanted to know how the boiler was fed—if we pumped all the water overboard again. I pointed out the pipe connected to the hot well, or reservoir, in the discharge pipe and showed the pump that caught the water on the fly, or as much of it as was needed for the boiler. He wanted the pipe from the sea-cock to the condenser made small enough so that there would be no discharge overboard. Then you wouldn't have any vacuum and your low-pressure cylinder would have to exhaust against a back pressure in the condenser and air pump. Better exhaust directly into the atmosphere and make her high pressure than do that. You hear quadruple expansion engines talked of for lake service, but this independent air pump is as good as a fourth cylinder.

Now to go back to the hot well, where the feed pump helps itself to this 120 degree discharge. Someone claims to get 140 degrees from the attached air pump. This may be so, but you only get about 21 inches of vacuum then, instead of 27 inches when using the independent air pump; besides, one gets 150 degrees with the independent, so you see we get hotter water and more vacuum with the independent anyhow. How? Why we send the exhaust steam from the independent air pump and from all the auxiliary engines into a heater and then pass our feed water through this heater. Besides, your attached air pump makes as many strokes per minute as the main engine, which causes a loss of power. Considerable difference between an attached air pump making 105 strokes per minute and an independent making thirteen. Which is the safest?

Here is something I read some time ago in the Engineer's Gazette: "Generally speaking every addition to the complications of the modern marine engine is looked upon with disfavor by those in charge, as increasing their responsibilities with often very intangible benefits; but for the information of those who may be engineers in charge of ordinary compounds, and who believe in heating feed water, I give the following particulars of very simple arrangements by which a saving in fuel of no less than 7½ per cent. was effected. This consisted of nothing more than leading a jet of live steam direct into the hot-well. The boiler pressure was 90 pounds, and a pipe of one square inch area was led from the main steam pipe to the hot-well, with a baffle-plate arranged so as to distribute the steam amongst the feed water, and also to prevent it impinging on the cast iron, as it had been found to quickly corrode it, unless deflected from it."

"The temperature of the feed had originally been maintained at 120° at a sacrifice of 2 inches vacuum. By means of the steam jet these 2 inches were recovered, as more injection could be applied, and the water was passed into the boiler at 170° Fahrenheit, which proved to be perfectly workable by ordinary feed pumps at that temperature."

"The economy resulting was so marked that an investigation of the cause must prove interesting. On one side we have a gain of 1 pound pressure (2 inches vac.) in the low pressure cylinder; and 50 degrees less heat required from the fuel, against which must be deducted the steam expanded in heating the feed. Consider this amount as having passed through the engines in the ord nary course, and it is the measure of the work lost."

LOSS OF STEAM.

Effective mean pressure in high pressure cylinder of 90 pounds steam upon 1 inch area, from indicator cards, 40.7 pounds.
Stroke, 4 feet.
Revolutions, 58
∴ Foot pounds, $40.7 \times 8 \times 58 = 18{,}884.8$ per minute in low pressure cylinder.
Mean pressure as above 7½ pounds.
∴ Foot pounds, $7.5 \times 8 \times 58 = 3480$ per minute.
Total loss, 22,364.8 feet pounds.

GAIN.

In low pressure cylinder per minute by an increase of 2 inches vacuum = 1 pound pressure.
Area of cylinder, 4071.5 square inches.
Foot pounds $4071.5 \times 8 \times 58 = 1{,}889{,}176$
Minus loss, 22,364.8
Net gain, 1,866,811.2 feet pounds.
Total feet pounds developed by engines indicated horse power = 1020.58.
$1020.58 \times 33{,}000 = 33{,}679{,}140$
∴ Per centage in gain = 5½
But there is also the additional gain due to the 50 degrees of heat less required from the fuel.
Total heat of steam from water at 120°
$1081.4 + .305 \times 120 = 1118°$
∴ Per centage of saving—
$50° : 1118° : x :: 100$
$1118\,x = 5000$
$x = 4.4$ per cent.

Altogether nearly 10 per cent. In actual practice the saving was found to be 15½ tons out of a consumption of 200 tons per trip, equal to 7½ per cent.—a near enough approximation to satisfy most experimentalists."

YOUNG ENGINEER.

The West Superior Iron and Steel Company, West Superior, Wis., in which the McDougall barge company is interested, has made a contract with the West Duluth blast furnace to use the output of pig iron of the latter. The furnace is now ready to start up, and is expected to produce about 150 tons a day. It will run on two-thirds of Gogebic soft ores and one-third Chandler soft.

Excelsior Marine Benevolent Association.

Capt. B. B. Inman of Duluth is at the head of one of the best equipped lines of harbor tugs on the lakes and is a representative of self made men in that branch of the lake trade. Capt. Inman was born in Ray, Macomb County, Michigan, in 1849 and with his parents moved to Port Hnron when a small boy. He commenced sailing at the age of fourteen on the propeller Bell as cabin boy with Capt.Hagedon between Detroit and Port Huron. The following season he went before the mast on the Ocean Wave with Capt. Fish in the lumber trade. At the age of sixteen he went in the Abe Lincoln with Capt Ben. Dove and the next year was with the same captain in the schooner E. M. Carrington, finishing that season with Capt. Manville Hyde on the Whittlesea. In his eighteenth year he was wheelman and second mate on the propeller Mayflower, Capt. Sprague, between Chi-

CAPT. B. B: INMAN.

cago and Buffalo, finishing the season on the propeller Concord between Chicago and Duluth with Capt. McKay, who was afterwards lost on the propeller Manistee, Capt. Campau now master of the Emily P. Weed being mate. During that winter he with two others built for themselves the scow Hannah Moore. Capt. Inman was mate of this boat during her first season and master the next. At the age of twenty-one he was wheelman and afterwards mate on the tug Geo. E. Brockway of the Moffat Line. The following two seasons was mate on the tug Clematis with Capt. Sol. Rumage. He was next mate of the tug Sweepstakes with Capt. Frank Welcome, finishing the season as master of the tug Zouave of the same line, staying in the same employ from the spring of 1873 till the fall of 1882, sailing the tugs Zouave Stranger, I. W. Masters, Satellite, Sweepstakes and Champion. In the season of 1882 and 1883 he was master of the steam barge Hiawatha, and next year brought out the steambarge Kasota for Capt. Thomas Wilson. The tollowing spring he commenced the tug business at Duluth by buying of Capt. Thos. Maytham the the tug J. L. Williams. The Inman Line now consists of the steel tug Record, tugs Carrington, Buffalo, J L. Williams, Effie L., Walton B., Pearl Campbell, Lida, Joe. D. Dudley and the fire boat David Sutton. A new steel tug to be built by the Cleveland Ship Building Company will be added to the line in the spring, and a 12-inch Silsby pump will be added to the Inman wrecking outfit.

HOLIDAY RATES.—The Nickel Plate makes one fare for the round trip, Dec. 23d to Jan. 1, inclusive, on account of holidays. Returning limit to June 5, 1892.

Around the Lakes.

Orders from Washington call for the closing of all life saving stations on the 15th inst.

About a dozen vessels having a storage capacity for 830,000 bushels of grain will winter at Duluth.

A survey of damage done the steamer Robert Mills of Buffalo by striking on her last trip up foots up within a few dollars of $10,000.

Eleven whaleback barges in Buffalo this week held about 800,000 bushels of wheat. They are evidently playing an important part in the carrying trade.

Engineer Philip Stutzman, who lost his life through the burning of the steamer Pease at Cleveland last week, was a resident of Buffalo, and was one of the oldest engineers on the lakes.

Twenty whaleback barges are now afloat. Two built at Brooklyn and engaged in the coal trade on the coast are numbered 201 and 202, and No. 118 was launched Saturday at West Superior.

Buffalo's coal shipments are at an end. The figures are 2,434,630 tons, against 2,157,810 tons in 1890, 2,156,670 tons in 1889 ane 2,556,270 tons in 1888. The latter was the heaviest season on record.

The story of the steamer Fred Pabst of Milwaukee having an excess of 4,007 bushels on her cargo of wheat from Gladstone to Buffalo was too good to be true. It was found later that the boat was actually seventy-two bushels short.

According to the custom of the Anchor Line, its new boats will be named for streams in the state of Pennsylvania. The one building in Buffalo will be called the Codorus, the one at Cleveland the Schuylkill and the one at Detroit the Mahoning.

Notwithstanding the general extension of insurance on the better class of steamers to Dec. 5 this year, applications were made by more than fifty vessels for a still further extension. Extensions were given at 5 per cent. of the season rate per day, or 20 per cent. for five days.

Dixon's American graphite pencils are in use everywhere and the concern manufacturing them, the Joseph Dixon Crucible Company, of Jersey City, N. J., is one of the greatest of its kind in the world. We are indebted to the advertising department for a package of the pencils.

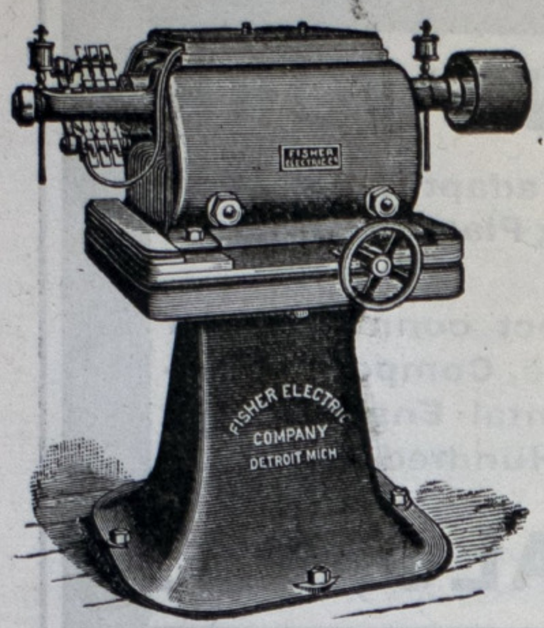
A hole in the steamer Philadelphia, which sank at Bar point, was effectually closed in an ingenious manner after the boat had been pumped out and towed to Detroit. After the flooring had been removed from above the break in the steamer's bottom a box was built up around the hole and filled up with liquid cement.

Manager Hebard of the Pickands, Mather & Co. fuel dock claims to have handled 76,700 tons of soft coal this season. Of this amount 56,000 tons was transferred to steamers at their own dock by means of the firm's steam lighter, thus saving much valuable time for their patrons. It is said that never before was so large a stock of fuel handled in Buffalo by one dock.—Buffalo Courier.

J. M. Jones & Son, of Detroit may profit by their enterprise in sending the schooner Owasco to the Atlantic coast. Everything in the way of deep water sea vessels that can possibly be pressed into the grain trade finds profitable freights, and it is to be expected, of course, that rates of freights in the coasting trade will advance in sympathy with the big demand for tonnage to take export grain.

In round figures 404,577,000 feet of lumber, 80,487,000 shingles and 15,838,000 pieces of lath were shipped from Saginaw river ports during the past season. Of the lumber Tonawanda received 164,244,000 feet, Cleveland 87,718,000 feet, Buffalo 58,142,000 feet, Toledo 46,786,000 feet,and Chicago 4,560,000 feet. The shipments of lumber are 5,000,000 feet less than last year, and shingles 9,000,000 pieces less.

C. T. Bangs of the firm of Hnghes Bros. & Bangs, who are to get about $1,500,000 for the masonary work on the St. Mary's Falls Canal lock says that the plant erected for carrying on the work, mainly hoisting and traveling crames, cost his firm $150,000. About 20,000 yards of block stone and 60,000 yards of backing will be used, and with the beginning of favorable weather next spring 750 men will be employed on the work at the Sault and at Kelley's island, Lake Erie. The stone, quarried on Kelley's island, is all cut to sizes before it is shipped, each block being numbered and prepared for a certain point in the big canal structure.



THE INCANDESCENT LIGHT

Is the only safe means of illuminating Passenger, Freight or Excursion Steamers. All other illuminants are dangerous. The Fisher system is Automatic in its operation, perfect in every detail, and does not require a skilled expert.

James Pickands, President

Minnesota Steamship Co.

Cleveland, O Nov. 13th, 1891

Messrs Fisher Electric Company,

Detroit. Mich.

Gentlemen;--

Your favor of the 9th inst is received, and in reply thereto would say that we have on the last two boats built by us, your electric lighting system, and we consider it very much superior to the plants of other manufacturers now in use on the balance of our fleet; on account of the better light, and greater economy and simplicity of operation. We take pleasure in recommending your system to the consideration of others contemplating the use of electricity for lighting on boats.

Yours very truly,

James Pickands

President.

D.

The letter that will occupy this space next week says of the Fisher plants, "I do not know how they could be improved upon." Read it.

FISHER ELECTRIC CO.

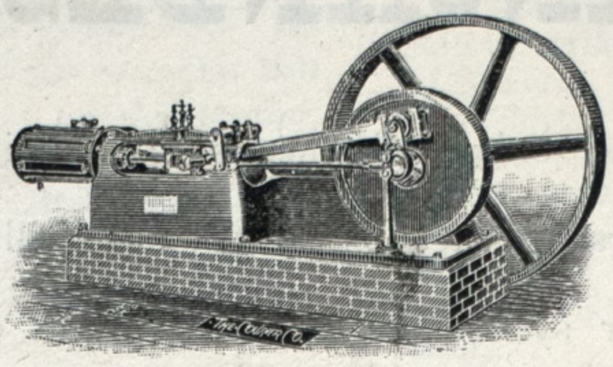
183, 185 & 187 Larned St., DETROIT, MICH.

(OVER.)

ELECTRIC LIGHT ENGINES for MARINE WORK

These are the Engines used with all the Electric Light Plants advertised on preceding page by THE FISHER ELECTRIC CO. of Detroit.

Over 25 lake boats fitted out between Jan. 1 and June 1, '91.



Especially adapted for operating Lighting Plants for Marine Work.

Either direct connection or by belt—Simple, Compound, Vertical. Horizontal Engines from Seven to Six Hundred H. P.

THE JNO. T. NOYE MFG. CO., BUFFALO, N.Y.

VESSEL AND MACHINERY EXCHANGE.

Space under this heading may be used gratis by our advertisers or subscribers to call attention to vessels or any craft, machinery, new or second hand, that they may have for sale. Those wanting machinery of any kind, or wishing to purchase vessels, are invited to take advantage of the same offer. Each item will be limited to three lines. Letters concerning same must mention number attached to item and be addressed MARINE REVIEW, 510 Perry-Payne Building, Cleveland, O.

77—WANTED—Particulars of inventions by party who can furnish money to patent same.

78—WANTED—First-class marine engine draughtsman.

79—WANTED—Steam yacht, 65 to 80 feet long, about 6 feet draft and plenty of deck room.

80—FOR SALE - Steam yacht 40 feet long, 9 feet beam; suitable for pleasure or ferry purposes; allowed forty passengers. Will sell cheap or exchange for interest in steambarge or lumber schooner.

81—FOR SALE—A2 steam barge; 174M capacity; easy terms.

82—FOR SALE—A1* steam barge; capacity 375M; easy terms.

83—FOR SALE—One compound marine engine cylinders 16 and 32x26 inches stroke.

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85—FOR SALE—8x4x10 Boiler feed pump.

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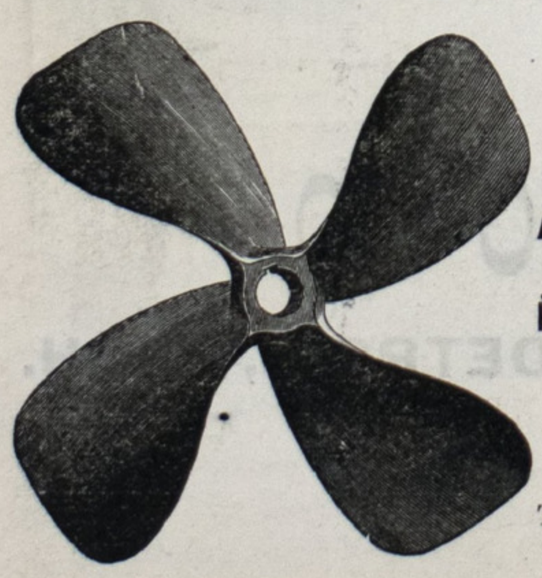

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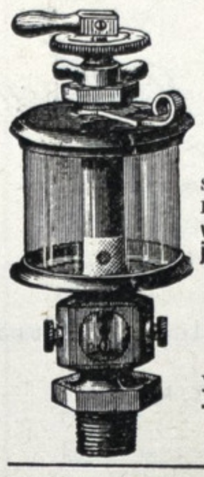

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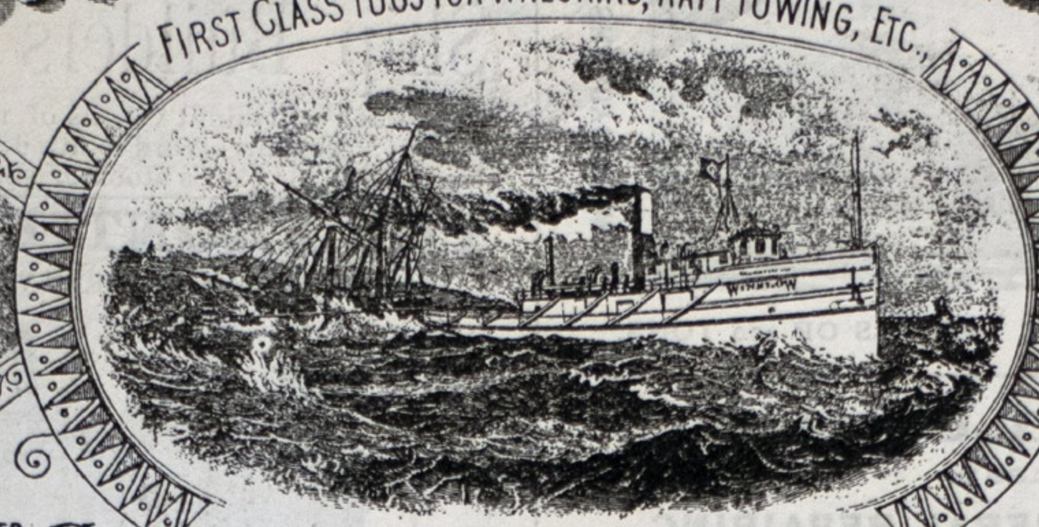

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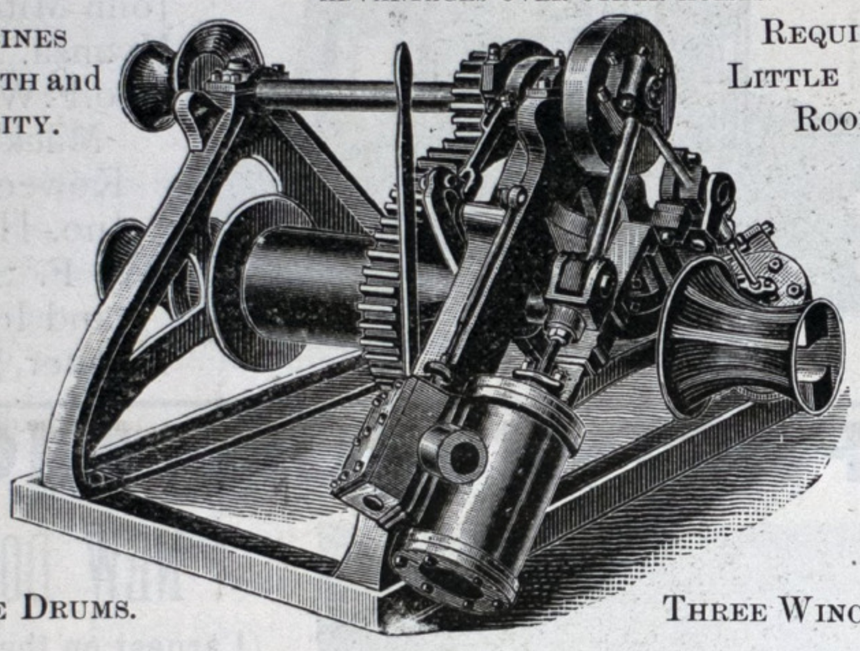

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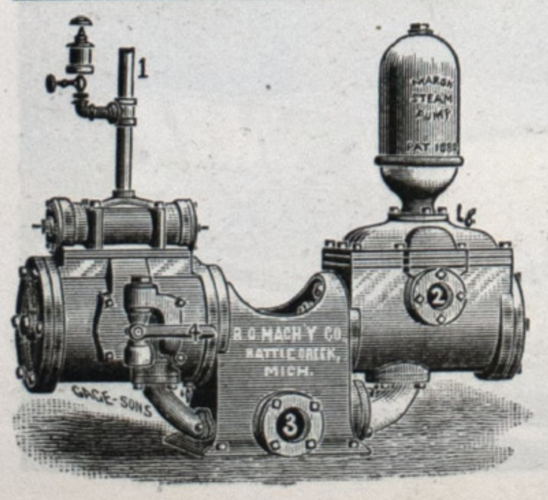

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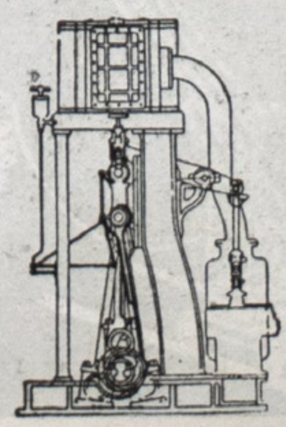

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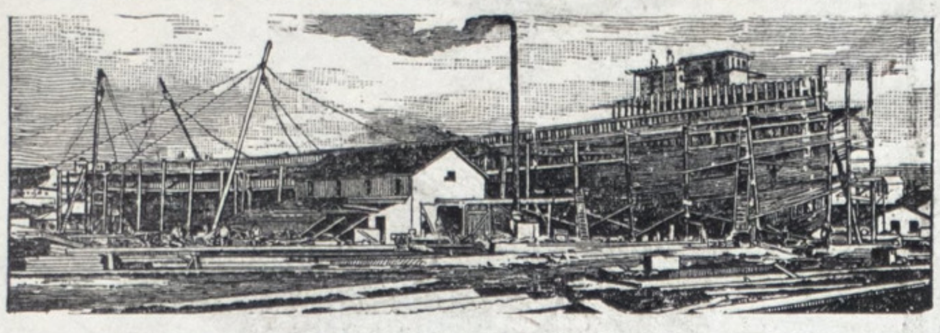

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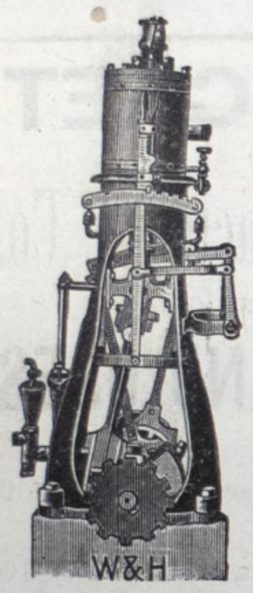

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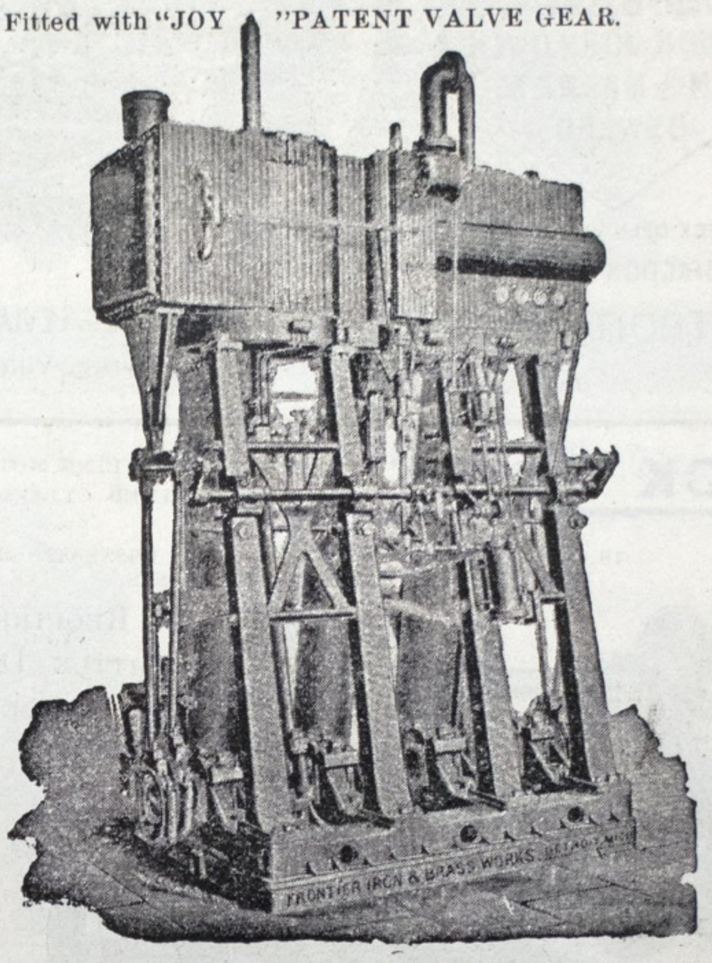

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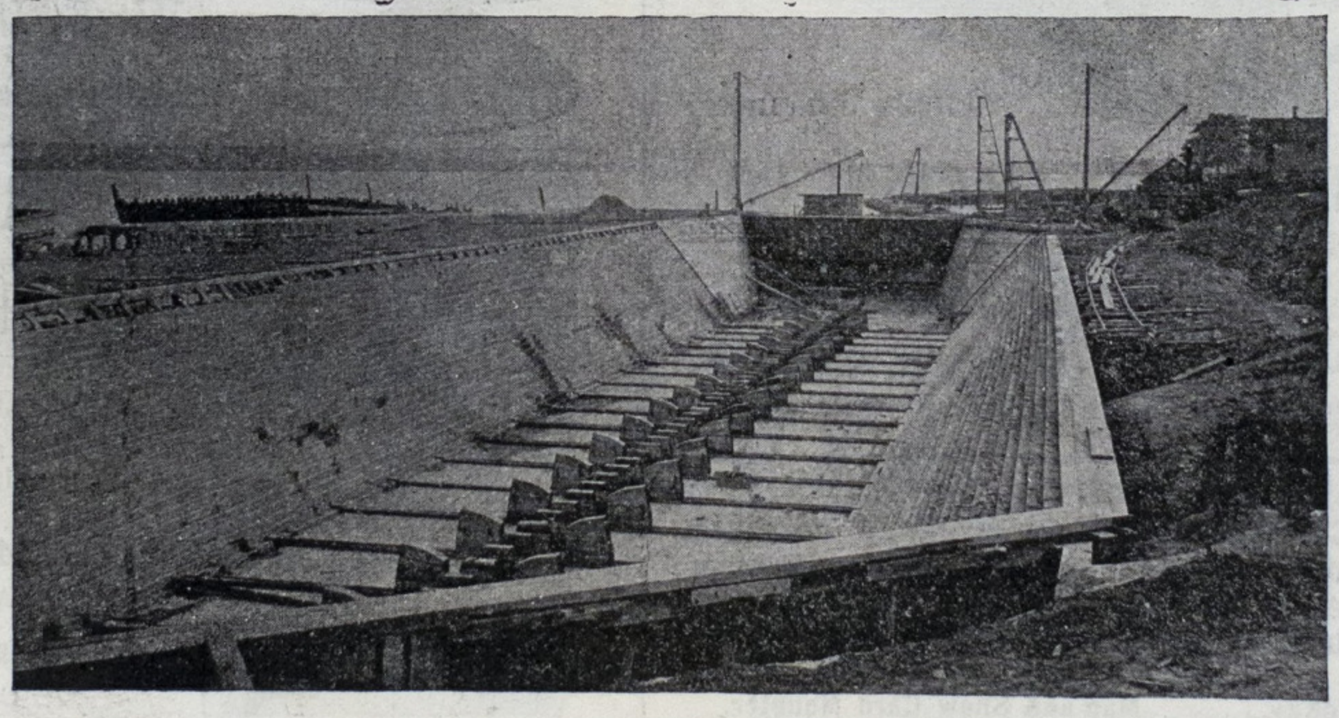

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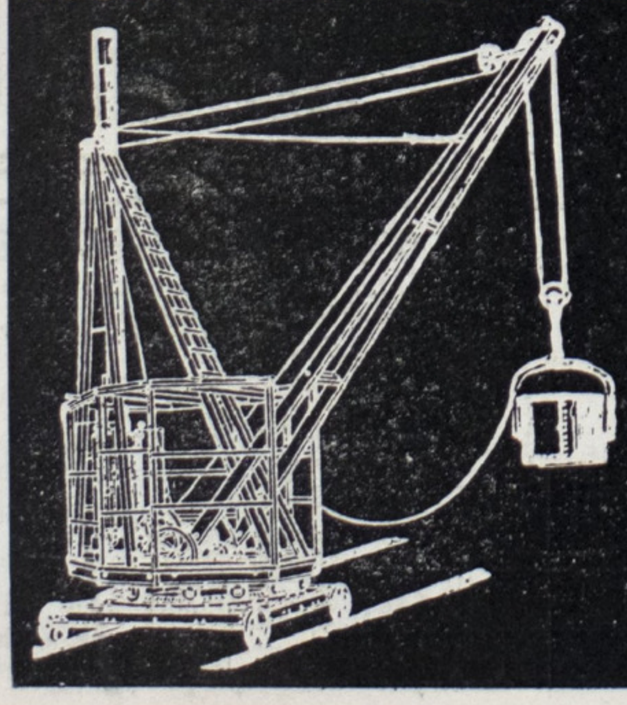

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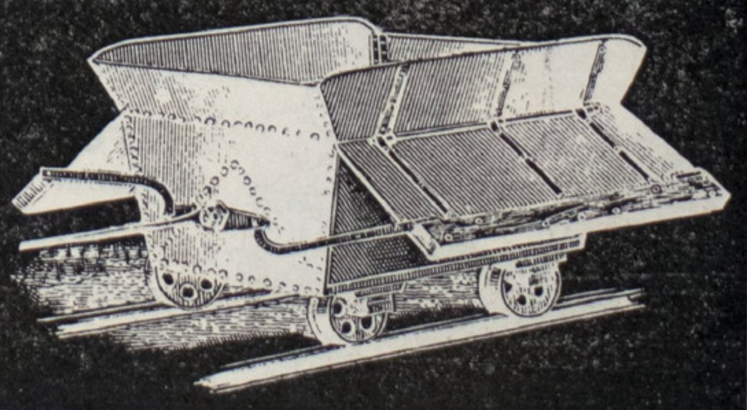
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